

Amendments to the Claims

The following listing of claims will replace all prior versions and listings of claims in the above-captioned application.

Listing of Claims:

1-341. (cancelled)

342. (currently amended): A sensor array for detecting an analyte in a fluid, comprising:

a substrate, wherein the substrate comprises ~~at least one~~ or more cavities~~avity~~;

a particle positioned ~~within~~ at least one of the cavity~~cavities~~, wherein the particle ~~is configured to produce a signal~~ exhibits a spectroscopic change upon interaction with the analyte; and

~~a one or more flexible projection~~ projections positioned over a portion of the top of the cavity in which the particle is positioned, wherein one or more of the flexible projection ~~is~~ projections are configured to substantially inhibit displacement of the particle from the cavity during use, and wherein one or more of the flexible projections are deformable during insertion of the particle into the cavity.

343-459. (cancelled)

460. (previously presented): The sensor array of claim 342, wherein the particle comprises a receptor molecule coupled to a polymeric resin.

461. (previously presented): The sensor array of claim 342, wherein the particle has a size ranging from about 0.05 microns to about 500 microns in diameter.
462. (previously presented): The sensor array of claim 342, wherein the cavity is configured to substantially contain the particle.
463. (previously presented): The sensor array of claim 342, further comprising a cover layer coupled to the substrate and a bottom layer coupled to the substrate, wherein the cover layer and the bottom layer are removable.
464. (currently amended): The sensor array of claim 342, wherein ~~an opening is formed in the~~ bottom of the cavity comprises an opening, and wherein the opening is configured such that the fluid flows through the cavity and out of the cavity through the opening during use.
465. (currently amended): The sensor array of claim 342, further comprising a cover layer coupled to the substrate and a bottom layer coupled to the substrate, wherein the bottom layer is coupled to a bottom surface of the substrate and wherein the cover layer is removable, and wherein the cover layer comprises an opening and the bottom layer ~~include~~ comprises an opening, openings that are and wherein the opening in the cover layer and the opening in the bottom layer are substantially aligned with the ~~cavities~~ cavity during use.
466. (currently amended): The sensor array of claim 342, further comprising a cover layer coupled to the substrate and a bottom layer coupled to the substrate, wherein ~~an opening is formed in the~~ cover layer comprises an opening substantially aligned with the cavity, and wherein ~~an opening that is substantially aligned with the cavity is formed in the~~ bottom layer comprises an opening substantially aligned with the cavity ~~substantially aligned with the cavity~~.
467. (currently amended): The sensor array of claim 342, wherein the cavity is tapered such that the width of the cavity narrows ~~in a direction~~ from a top surface of the substrate toward a

bottom surface of the substrate, and wherein a minimum width of the cavity is ~~substantially~~ less than a width of the particle.

468. (previously presented): The sensor array of claim 342, wherein a width of a bottom portion of the cavity is substantially less than a width of a top portion of the cavity, and wherein the width of the bottom portion of the cavity is substantially less than a width of the particle.

469. (currently amended): The sensor array of claim 342, further comprising a cover layer coupled to the substrate and a bottom layer coupled to the substrate, wherein the bottom layer is configured to support the particle, and wherein ~~an opening is formed in~~ the cover layer comprises an opening substantially aligned with the cavity.

470. (previously presented): The sensor array of claim 342, further comprising a removable cover layer coupled to the substrate.

471. (previously presented): The sensor array of claim 342, wherein the substrate comprises a plastic material.

472. (previously presented): The sensor array of claim 342, wherein the substrate comprises a silicon wafer.

473. (previously presented): The sensor array of claim 342, wherein the substrate comprises a dry film photoresist material.

474. (previously presented): The sensor array of claim 342, wherein the substrate comprises a plurality of layers of a dry film photoresist material.

475. (previously presented): The sensor array of claim 342, wherein an inner surface of the cavity is coated with a reflective material.

476. (previously presented): The sensor array of claim 342, further comprising channels in the substrate, wherein the channels are configured to allow the fluid to flow through the channels into and away from the cavity.

477. (previously presented): The sensor array of claim 342, further comprising a plurality of additional particles positioned within a plurality of additional cavities in the substrate.

478. (previously presented): The sensor array of claim 342, further comprising a plurality of additional flexible projections positioned over a plurality of additional cavities in the substrate.

479. (currently amended): The sensor array of claim 342, further comprising a cover layer coupled to the substrate, wherein at least one of the flexible projection-projections is formed in the cover layer.

480. (currently amended): The sensor array of claim 342, wherein ~~the~~ at least one of the flexible projection-projections comprises silicon nitride.

481. (currently amended): The sensor array of claim 342, wherein ~~the~~ at least one of the flexible projection-projections comprises a plastic.

482. (currently amended): The sensor array of claim 342, wherein at least one of the flexible projection-projections is configured to retain the particle in the cavity.

483. (previously presented): The sensor array of claim 342, wherein a top opening and a bottom opening of the cavity provides selection of the particle substantially contained in the cavity.

484. (currently amended): The sensor array of claim 342, wherein a size of the particle is smaller than a top opening of the cavity and larger than a bottom opening of the cavity such that the particle ~~will be~~ is substantially contained in the cavity.

485. (previously presented): The sensor array of claim 342, wherein the particle is positioned within the cavity by using airflow to pull the particle through the flexible projection.

486. (currently amended): The sensor array of claim 342, wherein at least one of the flexible projection-projections comprises silicon dioxide.

487. (currently amended): The ~~sensory~~ sensor array of claim 342, ~~further comprising a light source,~~ wherein at least one of the flexible projection-projections is transparent to light generated by ~~the~~ a light source.

488. (previously presented): The sensor array of claim 342, further comprising a cover layer coupled to the substrate and a bottom layer coupled to the substrate, wherein the cover layer and the bottom layer are transparent to light generated by a light source.

489. (currently amended): The sensor array of claim 342, wherein at least one of the flexible projection-projections is configured to elastically bend into the cavity in the substrate.

490. (currently amended): The sensor array of claim 342, further comprising a mask configured to inhibit bending of at least one of the flexible projection-projections bending from an initial position to a position away from the cavity.

491. (currently amended): The sensor array of claim 342, wherein at least one of the flexible projection-projections is electrically actuated to allow insertion of the particle into the cavity.

492. (currently amended): The sensor array of claim 342, wherein at least one of the flexible projection-projections is configured to elastically bend into the cavity in the substrate, and wherein the flexible projection is configured to be inhibited from bending away from the cavity.

493. (new): A sensor array for detecting an analyte in a fluid, comprising:

a substrate, wherein the substrate comprises one or more cavities;

one or more particles, wherein at least one of the particles is positioned in at least one of the cavities, wherein at least one of the particles exhibits a spectroscopic change upon interaction with the analyte; and

one or more flexible projections positioned over a portion of the top of at least one of the cavities, wherein at least one of the flexible projections is configured to substantially inhibit displacement of at least one of the particles from at least one of the cavities during use, and wherein at least one of the flexible projections is deformable during insertion of at least one of the particles into at least one of the cavities.

494. (new): A sensor array for detecting an analyte in a fluid, comprising:

a substrate, wherein the substrate comprises a plurality of cavities;

one or more particles, wherein at least one of the particles is positioned in at least one of the cavities, wherein at least one of the particles exhibits a spectroscopic change upon interaction with the analyte; and

one or more flexible projections positioned over a portion of the top of at least one of the cavities in which at least one of the particles is positioned, wherein at least one of the flexible projections is configured to substantially inhibit displacement of at least one of the particles from at least one of the cavities during use, and wherein at least one of the flexible projections is deformable during insertion of at least one of the particles into at least one of the cavities.